

WHAT IS CLAIMED IS:

1. A cell search method for a mobile station in a mobile communication system, the method being characterized by  
5 comprising a first step of despreading a received signal using a common spreading code common to all slots and detecting slot boundaries on the basis of a first average correlation coefficient, a second step of despreading the signal on the basis of said slot boundaries detected at  
10 the first step, using different individual spreading codes for said respective slots, and detecting frame boundaries and a scramble code group on the basis of a second average correlation coefficient, and a third step of descrambling a common pilot signal on the basis of said frame boundaries  
15 and scramble code group detected at the second step, and detecting a scramble code on the basis of a third average correlation coefficient, and wherein after said first, second, and third steps have been repeated, said first step is executed to detect slot boundaries using a plurality  
20 of said first average correlation coefficients.

2. The cell search method for a mobile station in a mobile communication system according to Claim 1, characterized in that said second step comprises detecting frame  
25 boundaries and a scramble code group using a plurality of said second average correlation coefficients with which said slot boundaries detected at said first step are equal.

3. The cell search method for a mobile station in a mobile communication system according to Claim 1, characterized in that said third step comprises detecting a scramble code using a plurality of said third average correlation  
5 coefficients with which said frame boundaries and scramble code group detected at said second step are equal.

4. The cell search method for a mobile station in a mobile communication system according to Claim 1, characterized  
10 in that said first step comprises calculating a fourth average correlation coefficient by averaging a plurality of said first average correlation coefficients within a predetermined averaging section, and detecting said slot boundaries using a timing with which the fourth average  
15 correlation coefficient is largest.

5. The cell search method for a mobile station in a mobile communication system according to Claim 2, characterized in that said third step comprises detecting a scramble code  
20 using a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected at said second step are equal.

6. The cell search method for a mobile station in a mobile communication system according to Claim 2, characterized  
25 in that said first step comprises calculating a fourth average correlation coefficient by averaging a plurality

of said first average correlation coefficients within a predetermined averaging section, and detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

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7. The cell search method for a mobile station in a mobile communication system according to Claim 2, characterized in that said second step comprises calculating a fifth average correlation coefficient by averaging, within a  
10 predetermined averaging section, a plurality of said second average correlation coefficients with which said slot boundaries detected at said first step are equal, and detecting said frame boundaries and scramble code group using a timing with which the fifth average correlation  
15 coefficient is largest.

8. The cell search method for a mobile station in a mobile communication system according to Claim 3, characterized in that said first step comprises calculating a fourth  
20 average correlation coefficient by averaging a plurality of said first average correlation coefficients within a predetermined averaging section, and detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

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9. The cell search method for a mobile station in a mobile communication system according to Claim 3, characterized

in that said third step comprises calculating a seventh average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected at said second step are equal, and detecting said scramble codes using the seventh average correlation coefficient.

10. The cell search method for a mobile station in a mobile communication system according to Claim 5, characterized in that said first step comprises calculating a fourth average correlation coefficient by averaging a plurality of said first average correlation coefficients within a predetermined averaging section, and detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

11. The cell search method for a mobile station in a mobile communication system according to Claim 5, characterized in that said second step comprises calculating a fifth average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said second average correlation coefficients with which said slot boundaries detected at said first step are equal, and detecting said frame boundaries and scramble code group using a timing with which the fifth average correlation coefficient is largest.

12. The cell search method for a mobile station in a mobile communication system according to Claim 5, characterized in that said third step comprises calculating a seventh  
5 average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected at said second step are equal, and detecting said scramble codes using  
10 the seventh average correlation coefficient.

13. A cell search method for a mobile station in a mobile communication system, the method being characterized by comprising a first step of despreading a received signal  
15 using a common spreading code common to all slots and detecting slot boundaries on the basis of a first average correlation coefficient, a second step of despreading the signal on the basis of said slot boundaries detected at the first step, using different individual spreading codes  
20 for said respective slots, and detecting frame boundaries and a scramble code group on the basis of a second average correlation coefficient, and a third step of descrambling a common pilot signal on the basis of said frame boundaries and scramble code group detected at the second step, and  
25 detecting a scramble code on the basis of a third average correlation coefficient, and wherein after said first, second, and third steps have been repeated, frame

boundaries and a scramble code group are detected using a plurality of said second average correlation coefficients with which said slot boundaries detected at said first step are equal.

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14. The cell search method for a mobile station in a mobile communication system according to Claim 13, characterized in that said third step comprises detecting a scramble code using a plurality of said third average correlation  
10 coefficients with which said frame boundaries and scramble code group detected at said second step are equal.

15. The cell search method for a mobile station in a mobile communication system according to Claim 13, characterized  
15 in that said second step comprises calculating a fifth average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said second average correlation coefficients with which said slot boundaries detected at said first step are equal, and  
20 detecting said frame boundaries and scramble code group using a timing with which the fifth average correlation coefficient is largest.

16. The cell search method for a mobile station in a mobile  
25 communication system according to Claim 14, characterized in that said second step comprises calculating a fifth average correlation coefficient by averaging, within a

predetermined averaging section, a plurality of said  
second average correlation coefficients with which said  
slot boundaries detected at said first step are equal, and  
detecting said frame boundaries and scramble code group  
5 using a timing with which the fifth average correlation  
coefficient is largest.

17. The cell search method for a mobile station in a mobile  
communication system according to Claim 14, characterized  
10 in that said third step comprises calculating a seventh  
average correlation coefficient by averaging, within a  
predetermined averaging section, a plurality of said third  
average correlation coefficients with which said frame  
boundaries and scramble code group detected at said second  
15 step are equal, and detecting said scramble codes using  
the seventh average correlation coefficient.

18. A cell search method for a mobile station in a mobile  
communication system, the method being characterized by  
20 comprising a first step of despreading a received signal  
using a common spreading code common to all slots and  
detecting slot boundaries on the basis of a first average  
correlation coefficient, a second step of despreading the  
signal on the basis of said slot boundaries detected at  
25 the first step, using different individual spreading codes  
for said respective slots, and detecting frame boundaries  
and a scramble code group on the basis of a second average

correlation coefficient, and a third step of descrambling  
a common pilot signal on the basis of said frame boundaries  
and scramble code group detected at the second step, and  
detecting a scramble code on the basis of a third average  
5 correlation coefficient, and wherein after said first,  
second, and third steps have been repeated, a scramble code  
is detected using a plurality of said third average  
correlation coefficients with which said frame boundaries  
and scramble code group detected at said second step are  
10 equal.

19. The cell search method for a mobile station in a mobile  
communication system according to Claim 18, characterized  
in that said third step comprises calculating a seventh  
15 average correlation coefficient by averaging, within a  
predetermined averaging section, a plurality of said third  
average correlation coefficients with which said frame  
boundaries and scramble code group detected at said second  
step are equal, and detecting said scramble codes using  
20 the seventh average correlation coefficient.

20. The cell search method for a mobile station in a mobile  
communication system according to Claim 4, characterized  
in that a plurality of said first average correlation  
25 values are weighted.

21. The cell search method for a mobile station in a mobile



communication system according to Claim 4, characterized  
in that said fourth average correlation value is calculated  
by adding a value obtained by multiplying a plurality of  
said first average correlation values by a forgetting  
5 factor.

22. The cell search method for a mobile station in a mobile  
communication system according to Claim 4, characterized  
in that said predetermined averaging section is adaptively  
10 changed according to a state of said mobile station.

23. The cell search method for a mobile station in a mobile  
communication system according to Claim 20, characterized  
in that a value of said weighting is adaptively changed  
15 according to the state of said mobile station.

24. The cell search method for a mobile station in a mobile  
communication system according to Claim 21, characterized  
in that a value of said forgetting factor is adaptively  
20 changed according to the state of said mobile station.

25. The cell search method for a mobile station in a mobile  
communication system according to Claim 22, characterized  
in that the state of said mobile station is either a state  
25 immediately after power-on or a standby state or a  
communicating state.

26. The cell search method for a mobile station in a mobile communication system according to Claim 22, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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27. The cell search method for a mobile station in a mobile communication system according to Claim 23, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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28. The cell search method for a mobile station in a mobile communication system according to Claim 23, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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29. The cell search method for a mobile station in a mobile communication system according to Claim 24, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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30. The cell search method for a mobile station in a mobile communication system according to Claim 24, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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31. The cell search method for a mobile station in a mobile communication system according to Claim 15, characterized in that a plurality of said second average correlation values are weighted.

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32. The cell search method for a mobile station in a mobile communication system according to Claim 15, characterized in that if said slot boundaries detected at said first step are equal, a value is added which is obtained by multiplying  
10 a sixth average correlation coefficient obtained by averaging a plurality of said second average correlation coefficients within a predetermined averaging section, by a forgetting factor, and if said slot boundaries detected at said first step are different, a result of the addition  
15 of said second average correlation coefficients is defined as said fifth average correlation coefficient.

33. The cell search method for a mobile station in a mobile communication system according to Claim 15, characterized  
20 in that said predetermined averaging section is adaptively changed according to a state of said mobile station.

34. The cell search method for a mobile station in a mobile communication system according to Claim 31, characterized  
25 in that a value of said weighting is adaptively changed according to the state of said mobile station.

35. The cell search method for a mobile station in a mobile communication system according to Claim 32, characterized in that a value of said forgetting factor is adaptively changed according to the state of said mobile station.

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36. The cell search method for a mobile station in a mobile communication system according to Claim 33, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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37. The cell search method for a mobile station in a mobile communication system according to Claim 33, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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38. The cell search method for a mobile station in a mobile communication system according to Claim 34, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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39. The cell search method for a mobile station in a mobile communication system according to Claim 34, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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40. The cell search method for a mobile station in a mobile communication system according to Claim 35, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a  
5 communicating state.

41. The cell search method for a mobile station in a mobile communication system according to Claim 35, characterized in that the state of said mobile station is set according  
10 to a movement speed of said mobile station in advance.

42. The cell search method for a mobile station in a mobile communication system according to Claim 19, characterized in that a plurality of said third average correlation  
15 values are weighted.

43. The cell search method for a mobile station in a mobile communication system according to Claim 19, characterized in that if said frame boundaries and scramble code groups  
20 detected at said second step are respectively equal, a value can be added which is obtained by multiplying an eighth average correlation coefficient obtained by averaging a plurality of said third average correlation coefficients within a predetermined averaging section, by  
25 a forgetting factor, and if said frame boundaries and scramble code groups detected at said second step are respectively different, a result of the addition of said

third average correlation coefficients is defined as said seventh average correlation coefficient.

44. The cell search method for a mobile station in a mobile  
5 communication system according to Claim 19, characterized  
in that said predetermined averaging section is adaptively  
changed according to a state of said mobile station.

45. The cell search method for a mobile station in a mobile  
10 communication system according to Claim 42, characterized  
in that a value of said weighting is adaptively changed  
according to the state of said mobile station.

46. The cell search method for a mobile station in a mobile  
15 communication system according to Claim 43, characterized  
in that a value of said forgetting factor is adaptively  
changed according to the state of said mobile station.

47. The cell search method for a mobile station in a mobile  
20 communication system according to Claim 44, characterized  
in that the state of said mobile station is either a state  
immediately after power-on or a standby state or a  
communicating state.

25 48. The cell search method for a mobile station in a mobile  
communication system according to Claim 44, characterized  
in that the state of said mobile station is set according

to a movement speed of said mobile station in advance.

49. The cell search method for a mobile station in a mobile communication system according to Claim 45, characterized  
5 in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

50. The cell search method for a mobile station in a mobile  
10 communication system according to Claim 45, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

51. The cell search method for a mobile station in a mobile  
15 communication system according to Claim 46, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

52. The cell search method for a mobile station in a mobile  
20 communication system according to Claim 46, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

53. A cell search apparatus for a mobile station in a  
25 mobile communication system, the apparatus being characterized by comprising a first detector for

despreading a received signal using a common spreading code common to all slots and detecting slot boundaries on the basis of a first average correlation coefficient, a second detector for despreading the signal on the basis of said  
5 slot boundaries detected at the first detector, using different individual spreading codes for said respective slots, and detecting frame boundaries and a scramble code group on the basis of a second average correlation coefficient, and a third detector for descrambling a common  
10 pilot signal on the basis of said frame boundaries and scramble code group detected by the second detector, and detecting a scramble code on the basis of a third average correlation coefficient, and wherein said first detector comprises means for storing a plurality of said first  
15 average correlation value obtained during a plurality of searches, second, and means for detecting slot boundaries using a plurality of said first average correlation coefficients.

20 54. The cell search apparatus for a mobile station in a mobile communication system according to Claim 53, characterized in that said second detector detects frame boundaries and a scramble code group using a plurality of said second average correlation coefficients with which  
25 said slot boundaries detected by said first detector are equal.



55. The cell search apparatus for a mobile station in a mobile communication system according to Claim 53, characterized in that said third detector detects a scramble code using a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal.

56. The cell search apparatus for a mobile station in a mobile communication system according to Claim 53, characterized in that said first detector comprises means for calculating a fourth average correlation coefficient by averaging a plurality of said first average correlation coefficients within a predetermined averaging section, and means for detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

57. The cell search apparatus for a mobile station in a mobile communication system according to Claim 54, characterized in that said third detector detects a scramble code using a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal.

58. The cell search apparatus for a mobile station in a

mobile communication system according to Claim 54,  
characterized in that said first detector comprises means  
for calculating a fourth average correlation coefficient  
by averaging a plurality of said first average correlation  
5 coefficients within a predetermined averaging section, and  
means for detecting said slot boundaries using a timing  
with which the fourth average correlation coefficient is  
largest.

10 59. The cell search apparatus for a mobile station in a  
mobile communication system according to Claim 54,  
characterized in that said second detector comprises means  
for calculating a fifth average correlation coefficient  
by averaging, within a predetermined averaging section,  
15 a plurality of said second average correlation  
coefficients with which said slot boundaries detected by  
said first detector are equal, and means for detecting said  
frame boundaries and scramble code group using a timing  
with which the fifth average correlation coefficient is  
20 largest.

60. The cell search apparatus for a mobile station in a  
mobile communication system according to Claim 55,  
characterized in that said first detector comprises means  
25 for calculating a fourth average correlation coefficient  
by averaging a plurality of said first average correlation  
coefficients within a predetermined averaging section, and

means for detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

5 61. The cell search apparatus for a mobile station in a mobile communication system according to Claim 55, characterized in that said third detector comprises means for calculating a seventh average correlation coefficient by averaging, within a predetermined averaging section,  
10 a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal, and means for detecting said scramble codes using the seventh average correlation coefficient.

15 62. The cell search apparatus for a mobile station in a mobile communication system according to Claim 57, characterized in that said first detector comprises means for calculating a fourth average correlation coefficient  
20 by averaging a plurality of said first average correlation coefficients within a predetermined averaging section, and means for detecting said slot boundaries using a timing with which the fourth average correlation coefficient is largest.

25 63. The cell search apparatus for a mobile station in a mobile communication system according to Claim 57,

characterized in that said second detector comprises means for calculating a fifth average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said second average correlation

5 coefficients with which said slot boundaries detected by said first detector are equal, and means for detecting said frame boundaries and scramble code group using a timing with which the fifth average correlation coefficient is largest.

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64. The cell search apparatus for a mobile station in a mobile communication system according to Claim 57,

characterized in that said third detector comprises means for calculating a seventh average correlation coefficient

15 by averaging, within a predetermined averaging section, a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal, and means for detecting said scramble codes using the seventh average  
20 correlation coefficient.

65. A cell search apparatus for a mobile station in a mobile communication system, the apparatus being characterized by comprising a first detector for

25 despread a received signal using a common spreading code common to all slots and detecting slot boundaries on the basis of a first average correlation coefficient, a second

detector for despredading the signal on the basis of said slot boundaries detected by the first detector, using different individual spreading codes for said respective slots, and detecting frame boundaries and a scramble code group on the basis of a second average correlation coefficient, and a third detector for descrambling a common pilot signal on the basis of said frame boundaries and scramble code group detected by the second detector, and detecting a scramble code on the basis of a third average correlation coefficient, and

wherein said second detector comprises means for storing a plurality of said second average correlation values with which said slot boundaries detected by said first detector are equal, and means for detecting frame boundaries and a scramble code group using a plurality of said second average correlation coefficients.

66. The cell search apparatus for a mobile station in a mobile communication system according to Claim 65, characterized in that said third detector comprises detecting a scramble code using a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal.

67. The cell search apparatus for a mobile station in a mobile communication system according to Claim 65,

characterized in that said second detector comprises means for calculating a fifth average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said second average correlation

5 coefficients with which said slot boundaries detected by said first detector are equal, and means for detecting said frame boundaries and scramble code group using a timing with which the fifth average correlation coefficient is largest.

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68. The cell search apparatus for a mobile station in a mobile communication system according to Claim 66,

characterized in that said second detector comprises means for calculating a fifth average correlation coefficient  
15 by averaging, within a predetermined averaging section, a plurality of said second average correlation

coefficients with which said slot boundaries detected by said first detector are equal, and means for detecting said frame boundaries and scramble code group using a timing  
20 with which the fifth average correlation coefficient is largest.

69. The cell search apparatus for a mobile station in a mobile communication system according to Claim 66,

25 characterized in that said third detector comprises means for calculating a seventh average correlation coefficient by averaging, within a predetermined averaging section,

a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal, and means for detecting said scramble codes using the seventh average correlation coefficient.

70. A cell search apparatus for a mobile station in a mobile communication system, the apparatus being characterized by comprising a first detector for despread-  
ing a received signal using a common spreading code common to all slots and detecting slot boundaries on the basis of a first average correlation coefficient, a second detector for despread-  
ing the signal on the basis of said slot boundaries detected by the first detector, using different individual spreading codes for said respective slots, and detecting frame boundaries and a scramble code group on the basis of a second average correlation coefficient, and a third detector for descrambling a common pilot signal on the basis of said frame boundaries and scramble code group detected by the second detector, and detecting a scramble code on the basis of a third average correlation coefficient, and  
wherein said third detector comprises means for storing a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group detected by said second detector are equal, and means for detecting a scramble code is detected using a plurality

of said third average correlation coefficients.

71. The cell search apparatus for a mobile station in a mobile communication system according to Claim 70,

5 characterized in that said third detector comprises means for calculating a seventh average correlation coefficient by averaging, within a predetermined averaging section, a plurality of said third average correlation coefficients with which said frame boundaries and scramble code group  
10 detected by said second detector are equal, and means for detecting said scramble codes using the seventh average correlation coefficient.

72. The cell search apparatus for a mobile station in a  
15 mobile communication system according to Claim 56,

characterized in that a plurality of said first average correlation values are weighted.

73. The cell search apparatus for a mobile station in a  
20 mobile communication system according to Claim 56,

characterized in that said fourth average correlation value is calculated by adding a value obtained by multiplying a plurality of said first average correlation values by a forgetting factor.

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74. The cell search apparatus for a mobile station in a mobile communication system according to Claim 56,



characterized in that said predetermined averaging section is adaptively changed according to a state of said mobile station.

5 75. The cell search apparatus for a mobile station in a mobile communication system according to Claim 72, characterized in that a value of said weighting is adaptively changed according to the state of said mobile station.

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76. The cell search apparatus for a mobile station in a mobile communication system according to Claim 73, characterized in that a value of said forgetting factor is adaptively changed according to the state of said mobile station.

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77. The cell search apparatus for a mobile station in a mobile communication system according to Claim 74, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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78. The cell search apparatus for a mobile station in a mobile communication system according to Claim 74, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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79. The cell search apparatus for a mobile station in a mobile communication system according to Claim 75, characterized in that the state of said mobile station is  
5 either a state immediately after power-on or a standby state or a communicating state.

80. The cell search apparatus for a mobile station in a mobile communication system according to Claim 75,  
10 characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

81. The cell search apparatus for a mobile station in a  
15 mobile communication system according to Claim 76, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

20 82. The cell search apparatus for a mobile station in a mobile communication system according to Claim 76, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

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83. The cell search apparatus for a mobile station in a mobile communication system according to Claim 67,

characterized in that a plurality of said second average correlation values are weighted.

84. The cell search apparatus for a mobile station in a  
5 mobile communication system according to Claim 67,  
characterized in that if said slot boundaries detected by  
said first detector are equal, a value is added which is  
obtained by multiplying a sixth average correlation  
coefficient obtained by averaging a plurality of said  
10 second average correlation coefficients within a  
predetermined averaging section, by a forgetting factor,  
and if said slot boundaries detected by said first detector  
are different, a result of the addition of said second  
average correlation coefficients is defined as said fifth  
15 average correlation coefficient.

85. The cell search apparatus for a mobile station in a  
mobile communication system according to Claim 67,  
characterized in that said predetermined averaging section  
20 is adaptively changed according to a state of said mobile  
station.

86. The cell search apparatus for a mobile station in a  
mobile communication system according to Claim 83,  
25 characterized in that a value of said weighting is  
adaptively changed according to the state of said mobile  
station.

87. The cell search apparatus for a mobile station in a mobile communication system according to Claim 84, characterized in that a value of said forgetting factor  
5 is adaptively changed according to the state of said mobile station.

88. The cell search apparatus for a mobile station in a mobile communication system according to Claim 85,  
10 characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

89. The cell search apparatus for a mobile station in a  
15 mobile communication system according to Claim 85, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

20 90. The cell search apparatus for a mobile station in a mobile communication system according to Claim 86, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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91. The cell search apparatus for a mobile station in a mobile communication system according to Claim 86,

characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

5 92. The cell search apparatus for a mobile station in a mobile communication system according to Claim 87, characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

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93. The cell search apparatus for a mobile station in a mobile communication system according to Claim 88, characterized in that the state of said mobile station is set according to a movement speed of said mobile station  
15 in advance.

94. The cell search apparatus for a mobile station in a mobile communication system according to Claim 71, characterized in that a plurality of said third average  
20 correlation values are weighted.

95. The cell search apparatus for a mobile station in a mobile communication system according to Claim 71, characterized in that if said frame boundaries and scramble  
25 code groups detected by said second detector are respectively equal, a value can be added which is obtained by multiplying an eighth average correlation coefficient

obtained by averaging a plurality of said third average correlation coefficients within a predetermined averaging section, by a forgetting factor, and if said frame boundaries and scramble code groups detected by said second  
5 detector are respectively different, a result of the addition of said third average correlation coefficients is defined as said seventh average correlation coefficient.

10 96. The cell search apparatus for a mobile station in a mobile communication system according to Claim 71, characterized in that said predetermined averaging section is adaptively changed according to a state of said mobile station.

15 97. The cell search apparatus for a mobile station in a mobile communication system according to Claim 94, characterized in that a value of said weighting is adaptively changed according to the state of said mobile  
20 station.

98. The cell search apparatus for a mobile station in a mobile communication system according to Claim 95, characterized in that a value of said forgetting factor  
25 is adaptively changed according to the state of said mobile station.

99. The cell search apparatus for a mobile station in a mobile communication system according to Claim 96, characterized in that the state of said mobile station is either a state immediately after power-on or a standby  
5 state or a communicating state.

100. The cell search apparatus for a mobile station in a mobile communication system according to Claim 96, characterized in that the state of said mobile station is  
10 set according to a movement speed of said mobile station in advance.

101. The cell search apparatus for a mobile station in a mobile communication system according to Claim 97,  
15 characterized in that the state of said mobile station is either a state immediately after power-on or a standby state or a communicating state.

102. The cell search apparatus for a mobile station in  
20 a mobile communication system according to Claim 97, characterized in that the state of said mobile station is set according to a movement speed of said mobile station in advance.

25 103. The cell search apparatus for a mobile station in a mobile communication system according to Claim 98, characterized in that the state of said mobile station is

